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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/517,589	03/03/2000	Masami Hatori	Q56793	5455

7590

04/28/2003

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EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 04/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/517,589

Applicant(s)

HATORI ET AL.

Examiner

Armando Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 January 2003.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

*Paul J.*  
*SPB 2/28*

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_      6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's arguments pertaining to independent claims 1-3,5-7,9,19,20 and dependent claims 4,8,10-18 and 21-27 filed February 4, 2003 have been fully considered but they are not persuasive.

Applicant's arguments pertaining to the above-mentioned claims relates the shape of the crystal as recited in the claims as "bulk shape" and to the waveguide within the crystal of the cited prior art Sonoda.

Regarding the limitation of "bulk shape" bulk relates to mass and volume of a body, which does not imply having a periodic domain reversing segments penetrating from one surface to another as applicant has intended to portray with the arguments on page 6 of the amendment. Furthermore, the wavelength conversion crystal of Sonoda does resemble a crystal of bulk shape.

Regarding the waveguide within the crystal of Sonoda, referring to figure 2 as mentioned by applicant. The figure does illustrate a waveguide (18), which formed on substrate (16) and has a polarization inversion region (17) for converting the received semiconductor light into a second harmonic light.

Applicant's arguments on page 7 discuss the difference between a wavelength conversion crystal and a channel optical waveguide, as the examiner agrees that these elements are not the same. However, in page 8 applicant applies the same comparison with a wavelength conversion waveguide the inclusion of a waveguide within the wavelength conversion element of Sonoda does not preclude it from performing as

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recited within the claims of the invention, furthermore, the above discussed claims do not recite such differences as applicant has implied.

Applicant's argument regarding the Nagai et al reference pertains to the polarization mode. The reference has not been relied on to teach or suggest the modes of polarization but only to teach and suggest the modulation of the laser system. Modulation techniques are well known in the art, however these techniques may be used to overcome inherent characteristics of the inversion domain regions by providing high conversion efficiency.

Regarding arguments pertaining to claim 28 applicant has failed recite any structural limitations for the scanning and recording device but only recites an intended for use for such a device.

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the light modulation device of claim 8 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: a light modulation device with the wavelength conversion module.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-3, 5-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Sonoda (JP10254001).

In the figures Sonoda illustrates a semiconductor laser, a wavelength conversion waveguide and a filter. The waveguide and the laser form an external resonant cavity by having a high reflective coating, which reflects the laser light and outputs second harmonic light. The narrow band pass filter will provide wavelength selection. See the figures for the different embodiments, which have similar structural arrangements to the claimed embodiments of applicant's invention and provide similar output beams.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4,25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sonoda (JP10254001) in view of Nagai et al (PN 5,617,435).

Regarding claims 4,25,27,28.

In the figures Sonoda illustrates a semiconductor laser, a wavelength conversion waveguide and a filter. The waveguide and the laser form an external resonant cavity by having a high reflective coating, which reflects the laser light and outputs second harmonic light. The narrow band pass filter will provide wavelength selection. See the figures for the different embodiments, which have similar structural arrangement to the claimed embodiments of applicant's invention and the similar output beam.

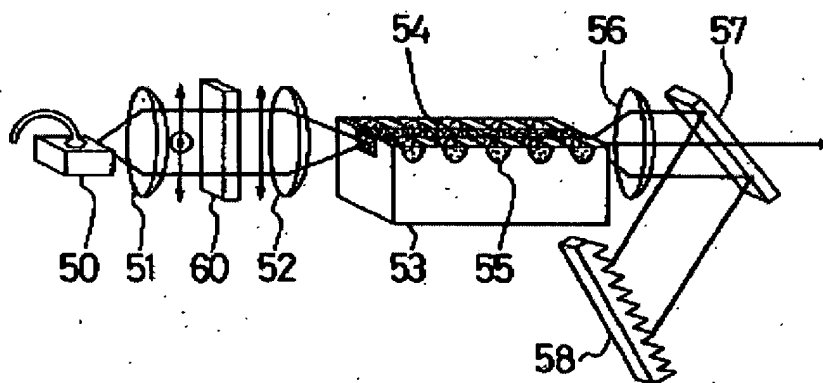
Sonoda does not illustrate providing modulation to the laser beam.

However, providing a wavelength conversion lasing system with an optical system which obtains wavelength modulation is well known in the art, as described in column 7 lines 27-30 and illustrated in prior art figure 13 of Nagai et al.

Regarding claim 26.

Providing modulation to a semiconductor laser by changing the current of the device is notoriously well known in the laser art.

FIG. 13  
PRIOR ART

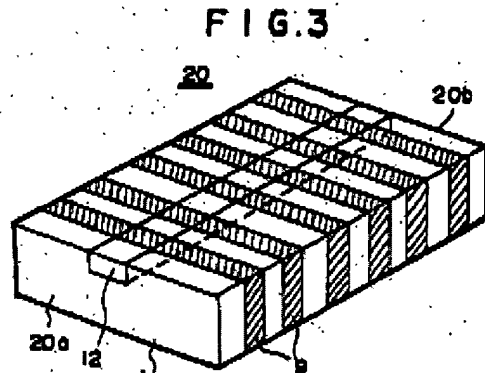


Claims 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sonoda (JP10254001) as applied above to claims 1, 12 and 22, and in view of Harada (PN 5,415,743).

Sonoda does not illustrate having the periodic domains penetrating from one surface to another.

Harada illustrates in figure 3 wavelength conversion element having periodic domains penetrating from one surface to another.

Therefore, it would have been obvious to a person having ordinary skill in the art the time the invention was made to provide the Sonoda device with a wavelength conversion element of Harada because both elements are equivalent since both elements will provide the laser system with wavelength conversion.



**Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is (703) 308-6218. The examiner can normally be reached on 10-hour day / M-F.




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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-

4881.

  
Armando Rodriguez  
Examiner  
Art Unit 2828

  
Paul Ip  
Supervisor  
Art Unit 2828

AR/PI  
April 21, 2003